

AMENDMENTS TO THE DRAWINGS

Fig. 1(a) has been labeled as prior art. The "R" in Fig. 1(a) has been modified to be "Rs", and the "R" in Fig. 1(b) has been modified to be "Rf". A replacement drawing sheet is submitted herewith.

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REMARKS

This paper responds to the Office Action mailed March 16, 2007. Applicants thank the Examiner for the indication of allowable subject matter in Claims 9 and 23. Applicants have carefully reviewed the Office Action and the cited art, and request reconsideration of the claims in view of the foregoing amendments and the following comments.

Claim Amendments

Claims 1 and 15 have been amended to further define the pre-configured cycle as specified at paragraph 15, lines 8-10, and to clarify the nature of the pre-configuration, i.e., pre-configured before a span or node failure, as provided by the discussion at paragraphs 22-34, of the original application as filed. As discussed further below, the amended claims are patentable over the cited art and should be allowed.

Drawing Amendments

The Office Action requested certain amendments to the drawings. In response, applicants have amended Fig. 1(a) to include the label "Prior Art." The reference character R in Fig. 1(a) has been changed to Rs, while the reference character R in Fig. 1(b) has been changed to Rf. It is evident from the specification that this was intended.

Claims 1-3 and 15-17 Are Rejected Under 35 U.S.C. § 102 as Being Anticipated by Ellinas, U.S. Patent No. 6,760,302.

Applicants respectfully traverse this rejection. Ellinas is completely different from the invention as claimed.

In Ellinas, protection cycles are organized as simple uni-directional cycles as illustrated in Fig. 3. The nodes contain mapping data that indicate which simple cycles are used to form a cycle group to route data around a failed switch. When a failure occurs, the switch uses the mapping data to break the protection cycles and join them to provide a restoration path that avoids the failure.

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The present invention differs from Ellinas in a number of ways. First, referring to Claims 1 and 15, the preconfigured cycles of the present invention are not the same as either Ellinas' protection cycles or his cycle groups. The protection cycles of Ellinas are simple cycles. They merely provide building blocks so that when a failure occurs they may be joined together into a restoration path by breaking the connections in the protection cycles and joining them together. The cycle groups of Ellinas are not preconfigured and thus Ellinas does not disclose a pre-configured cycle of spare capacity as claimed in Claims 1 and 15.

The Examiner is requested to carefully consider this difference. In Ellinas, there are two kinds of cycles. First, there are the simple cycles such as the cycles 323, 325, etc. Second, there are the cycles such as cycle group 331 that exists after cycles such as 323, 325, etc., are concatenated. The simple cycles do not themselves route the failures. The restoration paths are formed by combinations of simple cycles. See, for example, Figures 4 and 5 of Ellinas. In these examples, it can be seen that the restoration paths follow complicated combinations of simple cycles. Hence, in Fig. 4, failure 407 causes switches 450, 451, 418 and 417 to be operated to connect all of simple cycles shown in Fig. 4 to create the restoration paths between D1 and S1 and between D2 and S2.

From this analysis of Ellinas, it can be seen that the simple cycles such as cycles 323, 325, etc., of Ellinas:

1. Include the intermediate node (e.g., node 105 in Fig. 4), contrary to what is claimed; and
2. Do not provide providing two restoration paths to protect against a failure of a span straddling the pre-configured cycle (because the simple cycles of Ellinas have no straddling spans).

The exterior cycle 331 in Fig. 3 is incomplete and non-functional in itself without the addition of the simple cycles 323, 325, etc. Hence, the exterior cycle 331 cannot provide two restoration paths to protect against a failure of a span straddling the pre-configured cycle and one restoration path for a failure of a span on the pre-configured cycle, as claimed in Claims 1 and 15.

These distinctions from Ellinas are clear. Nothing in Ellinas remotely suggests the approach taken by in the present application. In fact, Ellinas teaches a completely opposite and more complicated approach to protection against node failure.


Claims 1 and 15 are therefore allowable, and the same arguments apply to the remaining claims which depend either directly or indirectly from Claims 1 and 15. Applicants have considered both Grover et al references, as well as the Wang et al reference, cited in the Office Action and find that these secondary references do not overcome the deficiencies discussed above relative to Ellinas.

CONCLUSION

Reconsideration and withdrawal of the rejections, and allowance of the claims, is respectfully requested. Should any matters remain needing resolution, the Examiner is invited to contact the undersigned counsel at the telephone number indicated below.

Respectfully submitted,

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